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dostegium, *R. demissum* is figured. The subgenus *Rhynchostegiella* is raised to generic rank with 5 species, of which *H. curvisetum* has been found in America.

E. G. B.

Recherches sur les Bacteriacees fossiles. By M. B. Renault. Ann. Sci. Nat. 65 : 275–349. *pl. 46.* 1896.

Until recent years the most ancient known bacteria were those discovered in the bones and teeth of Egyptian mummies. In 1879 M. Van Tieghem noted their existence in remains of fossil plants from the environs of St. Etienne. M. Renault in this learned and interesting study describes and illustrates numerous species preserved in animal and vegetable fossil remains from various parts of France.

A. M. V.

Proceedings of the Club.

TUESDAY EVENING, MARCH 9, 1897.

There were 32 persons present, President Brown presiding.

The Secretary read a letter stating conditions of a grant of money offered from the Newberry research fund. This letter was from Dr. N. L. Britton as Secretary of the Council of the Scientific Alliance of New York, and indicated that the award for the present year is to be in Geology or Paleontology, to amount to $50, payable July 15, 1897. The award applies to researches yet to be begun or completed, and which are to be embodied in a paper submitted to the Council within three months from the present notification. Each society within the Scientific Alliance is invited to nominate a recipient.

The scientific program was then taken up, the evening being devoted to the subject of Ferns with papers as follows:

1. Mrs. Elizabeth G. Britton, "Notes on some Mexican Ferns," presented, in Mrs. Britton's absence, by Dr. Rusby, with exhibition of numerous specimens, including species of *Pellaea*, *Polypodium*, *Cystopteris* and *Cheilanthes*. Dr. Rusby, having been himself present at their collection, described vividly the tongues of hard, black lava on which the collectors walked, and which was

filled with large cavities often forming caves, containing some accumulation of soil and crowded with a luxuriant growth of ferns, although in November and practically the winter season.

2. Mr. Willard N. Clute, "The New York Stations for *Scolopendrium.*" Mr. Clute contrasted the wide distribution of the Hart's-tongue Fern in the old world, from Great Britain to Japan, with the extremely local North American occurrence, in five areas only, Mexico, Tennessee, Central New York, Owen Sound in Ontario, and New Brunswick. The Central New York locality was made known early in the present century by Pursh in July, 1807, who found it five miles west of Syracuse on the farm of J. Geddes, where it has recently been rediscovered. About 1827 Wm. Cooper discovered it at Chittenango Falls, where Mr. Clute found hundreds of plants growing last summer. Mr. Clute described the Chittenango ravine and its ferns. On sunny exposures of the limestone walls of the ravine grow rue spleenwort and purple cliff-brake in quantities; in shady places, the slender cliff-brake; on the talus, upon the larger bowlders, the walking fern, and in the shade of these bowlders, the *Scolopendrium*, with fronds chiefly in clusters of 6 to 12, at first erect, finally somewhat drooping. The spores are ripe in September. Mr. Clute added that the species seems to be increasing at present, being now under the protection of an association.

Prof. Burgess remarked upon the former scarcity of the fern in that locality as reported to him by Dr. Torrey, of Chittenango, about 1874, and by Dr. Morong, who could find none at his visit about 1876.

Prof. Underwood spoke of the Jamesville locality, also on the corniferous limestone in Onondaga County, where 20 years ago he found it quite common about two small lakes, but becoming soon exhausted as the one most frequently visited. He queried why it should not occur at other ledges of the corniferous limestone throughout western New York, and why it should confine itself to that rock here, while in England it frequents sandstone, shale and limestone indifferently. Dr. Britton then remarked that in Europe (and Nova Scotia) *Campanula rotundifolia* grows in meadows, but here on rocks; *Cerastium arvense* also grows in Europe in fields, but here on rocks.

Dr. Britton said that *Scolopendrium* is probably a case like that of *Sequoia* and *Brasenia* of originally much wider distribution, where the isolated plants owe their survival to favorable conditions. He cited *Epipactis* among orchids as a parallel in distribution, confined here to central New York and Ontario, but widespread in the old world.

Mr. Benj. D. Gilbert added an interesting comparison of the growth of *Scolopendrium* at stations where he had collected it at Jamesville and Chittenango Falls, also in southern France, northern Italy, and Undercliff in the Isle of Wight. In the warm shelter of the latter place, it is more luxuriant than anywhere else, showing great tendency to sport, displaying forking tips and deeply cordate bases, as at Chittenango Falls.

3. The third paper was by Mr. B. D. Gilbert, of Utica, N. Y., entitled, " New and interesting Ferns from Bolivia," with exhibition of specimens of two new ferns, a *Blechnum* and a *Dryopteris*, the first peculiar in being fully pinnate, the second in being a one-sided dwarf persistently under a foot and a-half high, instead of 4 or 5 feet as its type. The paper will be printed in the BULLETIN

4. The fourth paper, also by Mr. Gilbert, " Jamaica, the Fern-Lover's Paradise," described the abundance of species and of individuals which the speaker had collected there, illustrating the subject by numerous specimens. He remarked that Swartz in his *Species Filicum*, 1783–86, enumerating all then known ferns, described 709 species, of which 140 were from Jamaica; the Jamaican number was raised to 300 by Grisebach and now to 500 by resident botanists there, an estimate confirmed by Mr. Gilbert.

Probably no other equal area produces half that number. Among reasons which account for this are the warm latitude of Jamaica, its south shore sheltered from cooler breezes by a mountain-wall, its mountains themselves rising to 7,000 feet and reaching into a cool temperate climate, and its great variation in moisture, with daily rains in the mountains and sometimes but twice in six months on the plain. Mr. Gilbert described in particular his experiences with the tree-ferns reached by a long journey on foot, high in the Blue mountains, there forming unmixed groves, their stems supplying the only wood readily obtainable. One, *Alsophila armata*, reaches 50 feet in height, though its slender stem is but a few inches in diameter. No class of ferns is as yet so poorly described as the tree-ferns; description should be from the living specimen and at the locality; the only such in English are those in Thwaites' Flora of Ceylon. Jamaica is remarkable in particular for its numerous Filmy Ferns, 26 species (out of 280 known); these are all in the three eastern parishes. In the east part *Blechnum occidentale* is the common fern of the roadsides; *Polypodium reptans* was seen everywhere, now growing erect; one bank 30x25 feet, was completely covered with *Gleichenia pectinacea.* The great number of endemic species is surprising; as if the work of differentiation had gone on there with greater activity and vital power than anywhere else in the world; every genus in Jamaica shows one or more endemic species.

Mr. Gilbert closed by exhibiting specimens of three new species from Jamaica, belonging to *Asplenium*, *Dryopteris* and *Polypodium*, and also of a number of rare species as *Entomosora Campbellii*, *Gymnogramma schizophylla* and *Adiantum Candollei.* His paper was discussed by President Brown, Prof. Underwood and Dr. Rusby, the latter referring to the uses made of tree-ferns in New Zealand, as compared with the use for timber and for posts in Jamaica.

Index to recent Literature relating to American Botany.

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